Amendments to the Claims:

Claims 6 to 8, 14, 15, 17, 23 to 25, 28 and 29 are amended and read as set forth hereinafter.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method of generating a stereoscopic image of an object to permit viewing thereof at a frequency greater than a flicker frequency of the human eye through left and right oculars of a microscope arrangement, the method comprising the steps of:

illuminating an object to provide an imaging beam passing through a single microscope objective defining an imaging beam path as well as an entry pupil and an exit pupil;

passing said imaging beam through an imaging optic along a single optical channel;

alternately blocking a section of said imaging beam in said imaging beam path on said single optical channel into two component beams at a clock frequency of the human eye greater than the flicker frequency at one of the following locations: in said exit pupil, near said exit pupil or at a position along said beam path which is optically conjugated to said exit pupil thereby forming a left image and a right image for a stereo pair; and,

transmitting said left and right images to left and right

oculars of said microscope arrangement for viewing by said observer.

2. (Original) A microscope arrangement for generating a stereoscopic image of an object for viewing by an observer through left and right oculars of a microscope at a frequency greater than a flicker frequency of the human eye, the microscope arrangement comprising:

a single microscope objective for imaging said object and defining an imaging beam path as well as an entry pupil and an exit pupil along a single optical channel;

illuminating optics for illuminating said object by providing an imaging beam coming from said object and passing through said objective and along said imaging beam path;

means for alternately blocking a section of said imaging beam in said imaging beam path on said single optical channel to form two component beams at a clock frequency greater than said flicker frequency of the human eye with said blocking means being disposed at or near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil, thereby forming a left image and a right image for a stereo pair;

means for transmitting said left and right images to said left and right oculars of said microscope for viewing by said observer; and,

said blocking means including a DMD mirror arrangement for forming said left image and said right image for said stereo pair.

3. (Original) A microscope arrangement for generating a stereoscopic image of an object for viewing by an observer through left and right oculars of a microscope at a frequency greater than a flicker frequency of the human eye, the microscope arrangement comprising:

a single microscope objective for imaging said object and defining an imaging beam path as well as an entry pupil and an exit pupil along a single optical channel;

illuminating optics for illuminating said object by providing an imaging beam coming from said object and passing through said objective and along said imaging beam path;

means for alternately blocking a section of said imaging beam in said imaging beam path on said single optical channel to form two component beams at a clock frequency greater than said flicker frequency of the human eye with said blocking means being disposed at or near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil, thereby forming a left image and a right image for a stereo pair;

means for transmitting said left and right images to said left and right oculars of said microscope for viewing by said observer; and,

said blocking means including LCD modulator for forming said left image and said right image for said stereo pair and including means for polarizing the light transmitted from said blocking means.

4. (Original) The microscope arrangement of claim 3, further comprising a diaphragm mounted at one of the following locations: in said exit pupil, near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil; and, said diaphragm being configured to optimize contrast, resolution and depth of field of the stereoscopic image.

5. (Original) The microscope arrangement of claim 4, wherein said blocking means includes means for performing a diaphragm function which is changeable with respect to at least one of its diaphragm size and diaphragm form.

6. (Currently Amended) The microscope arrangement of claim 4, said diaphragm being an adjustable diaphragm ~~with respect to its dimensions~~.

7. (Currently Amended) The microscope arrangement of claim 6, wherein said diaphragm can be exchanged for another element having a different form and dimensions.

8. (Currently Amended) ~~The microscope arrangement of claim 6, wherein~~ A microscope arrangement for generating a stereoscopic image of an object for viewing by an observer through left and right oculars of a microscope at a frequency greater than a flicker frequency of the human eye, the microscope arrangement comprising:

a single microscope objective for imaging said object and defining an imaging beam path as well as an entry pupil and an

exit pupil along a single optical channel;

illuminating optics for illuminating said object by providing an imaging beam coming from said object and passing through said objective and along said imaging beam path;

means for alternately blocking a section of said imaging beam in said imaging beam path on said single optical channel to form two component beams at a clock frequency greater than said flicker frequency of the human eye with said blocking means being disposed at or near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil, thereby forming a left image and a right image for a stereo pair;

means for transmitting said left and right images to said left and right oculars of said microscope for viewing by said observer;

said blocking means including LCD modulator for forming said left image and said right image for said stereo pair and including means for polarizing the light transmitted from said blocking means;

a diaphragm mounted at one of the following locations: in said exit pupil, near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil; and, said diaphragm being configured to optimize contrast, resolution and depth of field of the stereoscopic image;

said diaphragm being an adjustable diaphragm; and,

said diaphragm ~~is~~ being configured as one of the following: a circular diaphragm, a rectangular diaphragm or an iris diaphragm.

9. (Original) A microscope arrangement for generating a stereoscopic image of an object for viewing by an observer at a frequency greater than a flicker frequency of the human eye, the microscope arrangement comprising:

a single microscope objective for imaging said object and defining an imaging beam path as well as an entry pupil and an exit pupil along a single optical channel;

illuminating optics for illuminating said object by providing an imaging beam coming from said object and passing through said objective and along said imaging beam path;

means for alternately blocking a section of said imaging beam in said imaging beam path along said single optical channel to form two component beams at a clock frequency greater than said flicker frequency with said blocking means being disposed at or near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil, thereby forming the left image and right image for a stereo pair for viewing by said observer with the left and right eyes;

a video camera;

means for transmitting said stereoscopic sectional images to said video camera; and,

a 3D display device connected to said video camera to facilitate viewing of said left and right images by said observer.

10. (Original) The microscope arrangement of claim 9, wherein said blocking means is a DMD mirror.

11. (Original) The microscope arrangement of claim 9, further comprising a diaphragm mounted at one of the following locations: in said exit pupil, near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil.

12. (Original) The microscope arrangement of claim 11, wherein said diaphragm is configured as one of the following: a circular diaphragm, a rectangular diaphragm or an iris diaphragm.

13. (Original) The microscope arrangement of claim 11, wherein said blocking means is a DMD mirror or an LCD modulator which includes means for performing a diaphragm function which is changeable with respect to at least one of its diaphragm size and diaphragm form.

14. (Currently Amended) The microscope arrangement of claim 11, said diaphragm being an adjustable diaphragm ~~with respect to its dimensions~~.

15. (Currently Amended) The microscope arrangement of claim 14, wherein said diaphragm can be exchanged for another element having a different form and dimensions.

16. (Original) The microscope arrangement of claim 9, wherein said blocking means is an LCD modulator.

17. (Original) A microscope arrangement for generating a

stereoscopic image of an object for viewing by an observer at a frequency greater than a flicker frequency of the human eye, the microscope arrangement comprising:

a single microscope objective for imaging said object and defining an imaging beam path as well as an entry pupil and an exit pupil along a single optical channel;

illuminating optics for illuminating said object by providing an imaging beam coming from said object and passing through said objective and along said imaging beam path;

means for alternately blocking a section of said imaging beam in said imaging beam path along said single optical channel to form two component beams at a clock frequency greater than said flicker frequency with said blocking means being disposed at or near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil, thereby forming the left image and right image for a stereo pair for viewing by said observer with the left and right eyes;

a video camera;

means for transmitting said stereoscopic sectional images to said video camera;

a 3D display device connected to said video camera to facilitate viewing of said left and right images by said observer; and,

said blocking means including a variable light modulator for forming said left image and said right image for said stereo pair.

18. (Original) The microscope arrangement of claim 17, wherein

said objective is a single-channel objective.

19. (Original) The microscope arrangement of claim 17, wherein said variable light modulator is an LCD modulator.

20. (Original) The microscope arrangement of claim 17, further comprising a diaphragm mounted at one of the following locations: in said exit pupil, near said exit pupil or at a position along said imaging beam path which is optically conjugated to said exit pupil; and, said diaphragm being configured to optimize contrast, resolution and depth of field of the stereoscopic image.

21. (Original) The microscope arrangement of claim 20, wherein said diaphragm is configured as one of the following: a circular diaphragm, a rectangular diaphragm or an iris diaphragm.

22. (Original) The microscope arrangement of claim 20, wherein said blocking means includes means for performing a diaphragm function which is changeable with respect to at least one of its diaphragm size and diaphragm form.

23. (Currently Amended) The microscope arrangement of claim 20, said diaphragm being an adjustable diaphragm ~~with respect to its dimensions~~.

24. (Currently Amended) The microscope arrangement of claim 23, wherein said diaphragm can be exchanged for another element having a different form and dimensions.

25. (Currently Amended) A microscope arrangement for generating a stereoscopic image of an object for viewing at a frequency greater than a flicker frequency, the microscope arrangement comprising:

a single microscope objective for imaging said object and defining an imaging beam path as well as an entry pupil and an exit pupil;

an illuminating source for providing an illuminating beam;

means at or near said entry pupil for receiving said illuminating beam and alternately blocking a section thereof to form two illuminating component beams at a clock frequency greater than said flicker frequency of the human eye;

illuminating optics for transmitting said illuminating component beams to said object for illuminating said object at various angles; ~~and,~~

said illuminating optics including a diaphragm mounted in or near said receiving and blocking ~~means~~ means; and,

means for guiding the different images to corresponding ones of the eyes of an observer.

26. (Original) The microscope arrangement of claim 25, wherein said diaphragm is configured as one of the following: a circular diaphragm, a rectangular diaphragm or an iris diaphragm.

27. (Original) The microscope arrangement of claim 25, wherein said blocking means includes means for performing a diaphragm function which is changeable with respect to at least one of its diaphragm size and diaphragm form.

28. (Currently Amended) The microscope arrangement of claim 25, said diaphragm being an adjustable diaphragm ~~with respect to its dimensions~~.

29. (Currently Amended) The microscope arrangement of claim 28, wherein said diaphragm can be exchanged for another element having a different form and dimensions.